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APRIL 2.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-six persons present.

The death of Dr. Charles Pickering, a correspondent, was announced.

Toilet Habits of Ants.—Rev. H. C. McCOOK stated that the agricultural ant—and the remark applies to all other ants of which he had knowledge—is one of the neatest of creatures in her personal habits. He thought he had never seen one of his imprisoned harvesters, either *barbatus* or *crudelis*, in an untidy condition. They issue from their burrows, after the most active digging, even when the earth is damp, without being perceptibly soiled. Such minute particles of dirt as cling to the body are carefully removed. Indeed the whole body is frequently and thoroughly cleansed, a duty which is habitually, he might almost venture to say invariably, attended to after eating and after sleep. In this process the ants assist one another; and it is an exceedingly interesting sight which is presented to the observer when this general "washing up" is in progress. In the evening, when the gas-lamp upon his table is lit, and he had leisure from professional duties to watch his insect friends, he had many times kept them under notice for protracted periods. They crowd against the glass, and gather in groups upon the earth close up to it and cleanse themselves, cleanse each other, and sleep. The first operation is conducted as follows: The ant to whom the friendly office is being administered (the cleansed, she may be called) is leaning over upon one side as we begin the observation. The cleanser (as we may name the other party) is in the act of lifting the fore leg, which is licked, the mouth passing steadily from the tarsus up to the body; next, the neck is licked, then the prothorax, then the head. The cleanser now leaves, and the cleansed begins to operate upon herself as will be described hereafter. This process may be seen throughout the entire group. We take another couple; the cleanser has begun at the face, which is licked thoroughly, even the mandibles being cared for; they being held apart for convenient manipulation. From the face the cleanser passes to the thorax, thence to the haunch, and so along the first leg, the second and third in the same manner, around to the abdomen, and thence up the other side of the ant to the head. A third ant approaches and joins in the friendly task, but soon abandons the field to the original cleanser. The attitude of the cleansed all this while is one of intense satisfaction, quite resembling that of a family dog when one is scratching the back of his neck. The insect stretches out her limbs, and as her friend takes them successively into hand, yields them limp and supple to her manipulation; she rolls gently over upon her side, even quite over upon her back, and with all her limbs relaxed presents a perfect picture of muscular surrender and ease. The pleasure which the creatures take in being thus "combed" and "sponged" is really enjoyable to the observer. He had seen an ant kneel down before another, and thrust forward the head, drooping, quite under the face, and lie there motionless, thus expressing as plainly as sign-language could her desire to be cleansed. He understood the gesture, and so did the supplicated ant, for she at once went to work. If analogies in nature-studies were not so apt to be misleading, one might venture to suggest that our insect friends are thus in possession of a modified sort of emmetonian Turkish bath!

The acrobatic skill of these ants, which had often furnished him amusement, was fully shown one morning in these offices of ablution. The formicary was taken from the study where the air had become chilled, and placed in an adjoining chamber upon the hearth, before an open grate fire. The genial warmth was soon diffused throughout the nest, and aroused the occupants to unusual activity. A tuft of grass in the centre of the box was presently covered with them. They climbed to the very top of the spires, turned around and around, hanging by their paws, not unlike gymnasts performing upon a turning-bar. They hung or clung in various positions, grasping the grass-blade with the third and fourth pairs of legs, which were spread out at length, cleansing their heads with the fore legs or bending underneath to comb and lick the abdomen. Among these ants were several pairs, in one case a triplet, engaged in the cleansing operation just described. The cleanser clung to the grass, while the cleansed hung in a like position below, and reached over and up, submitting herself to the pleasant process. As the progress of the act required a change of posture on the part of both insects, it was made with the utmost agility.

The ants engaged in cleansing their own bodies have various modes of operating. The fore legs are drawn between the mandibles, and, as far as could be ascertained, also through or along the lips, and then are passed alternately back of the head, over and down the forehead and face, by a motion which closely resembles that of a cat when cleansing with her paw the corresponding part of her head. Sometimes but one side of the head is cleansed, in which case the foot used is drawn through the mandibles or across the teeth of one mandible after every two or three strokes upon the face. These strokes are always made downward, following thus the direction of the hairs. The hairs upon the tibia and the tarsus seem to serve the purpose of a brush or comb, and he had thought that the object in drawing the leg through the teeth or between the mandibles is to straighten up the hairs, and thus increase their efficiency for service. Not only the fore pair, but also the other legs are passed, as above described, through the mouth. The second and third pairs are also and oftener cleansed by the fore legs as follows: the ant throws herself over upon her side, draws up the middle and hind legs, which are interlocked at the tarsi, and then, clasping them with one fore leg, presses the other downward along the other two. The fore legs alternate in this motion. When the legs of one side are cleansed, the ant reverses her position, and repeats the process. When the antennæ are cleansed they appear to be taken between the curved spur at the extremity of the tibia and the tibia itself, as one would clasp an object between the base of the thumb and the hand, and are drawn toward the tip of the flagellum, evidently with some pressure. He had thought that he could notice this spur also used as a brush or scraper in the general application of the fore leg to the body. It seems to have an articulation at its junction with the tibia.

The cleansing of the abdomen places the ant in a grotesque attitude. The hind legs are thrown backward and well extended, the middle pair nearly straight outward from the thorax, and less extended, so that the body is able to assume a nearly erect posture. The abdomen is then turned under the body and upward toward the head, which is at the same time bent over and downward. The body of the ant thus forms a letter C, or nearly a circle. The fore feet have meanwhile clasped the abdomen, and the work of brushing has begun. The strokes are directed upward toward the apex of the abdomen, and the foot passes around and beneath the under part, which is now toward the sternum. The apex is frequently licked by the tongue, and the feet are occasionally passed through the mouth (not simply between the mandibles), after which they again are applied as before. Evidently moisture is conveyed from the mouth and rubbed upon the abdomen. He had so frequently observed this action that he could hardly be mistaken in the glossy appearance which showed the presence of moisture upon the surface. Occasionally the leg is rubbed over the head after being drawn through the mouth, and so again to the abdomen. Usually the abdomen is held a little distance from the sternum, but he had seen it pressed up close against the breast, while the outer (upper) part was being cleansed. One ant was seen cleansing its abdomen while hanging by the hind legs from the roof of the formicarium. The abdomen was thrown up and between these legs, just as a performer on the turning-bar throws his body and legs upward and between the arms. The head was reached upward from below to the apex of the abdomen, while tongue and fore feet were engaged upon it in the usual way.

The amount of time devoted to these toilet duties is very great with his imprisoned ants, but is probably not so great in a state of nature. No doubt with ants, as with men, an artificial condition of society gives inducement to a larger devotion to personal appearance. He had not been able to give them much attention during the day; but when they are transferred to the neighborhood of register or fire-place, and thus are made unusually comfortable, they at once begin their ablutions. Invariably, at night, when the gas-lamp is lit and placed near the glass formicaries, the heat and light, both of which appear to be grateful to them, tempt them out, as already stated, and they begin operations. So also after eating, and when awaking from sleep. In short, whenever they are in a particularly comfortable state they express their satisfaction by making their toilet.

Notes on Acer rubrum.—Mr. THOMAS MEEHAN observed that polygamous plants were defined as those which had hermaphrodite and male and female flowers on the same or separate plants, and, in some of our text-books, the red maple was given as an illustration. But though the red maple had full-sized anthers in the early stage of the female flowers, the stamens were never fully developed, or were polleniferous, so far as his experience extended. According to his observations, the casual observer might be pardoned for supposing what are really but female flowers are hermaphrodite; for, on the bursting of the petals, the centre of the flower seems a mass of perfectly formed anthers. At this particular stage of the inflorescence, the appearances in the male and female flowers are exactly alike, except that in the female flowers the apices of the two pistils are visible in the centre of the mass of stamens in the one case, while they are wholly absent in the other. But, with the expansion of the petals, all growth in the stamens ceases in the pistillate flowers. They remain in this unfinished condition, while the pistils continue to elongate and the ovaria to enlarge, eventually drying up and falling away. In the male flowers, however, the filaments lengthen to one-fourth, and occasionally in some trees to half an inch; and, when the proper time comes, the anther cells burst and the pollen escapes. Why the stamens should be advanced to this stage in the female flowers to be suppressed just before their full development does not appear. It is an interesting problem awaiting further investigation, but it leaves us with the fact that the flowers are none of them truly hermaphrodite. The red maple is really a diœcious plant.

Mr. Meehan then proceeded to examine the average proportion of the sexes among individual trees. On a tract on which were 144 trees, apparently ten to fifteen years old, he found 34 of them not yet in flowering condition; of the remaining 110, 41 were females and 69 males, showing about one-third more males than females. He had examined a large number of trees of mature age, but so far as he could ascertain there was no attempt to change the sexual characters, but each tree was male or female throughout its life. In all that has so far been said of the structure and behavior of the flowers, those of the silver maple, *Acer*